GRANT & HACKH'S

CHEMICAL DICTIONARY

[American, International, European and British Usage]

Containing the Words Generally Used in Chemistry, and Many of the Terms Used in the Related Sciences of Physics, Medicine, Engineering, Biology, Pharmacy, Astrophysics, Agriculture, Mineralogy, etc.

Based on Recent Scientific Literature

FIFTH EDITION

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soluble in water. Forms clathrate compounds. A photographic developer. **ethyl ~** H. ethyl ether. **hydroxy ~** 1,2,4-Trihydroxybenzene*. **tetrachloro ~** Chloranol. **h.carboxylic acid** Gentisic acid. **h. dimethyl ether** 1,4-Dimethoxy*benzene**. **h. ethyl ether** HOC_6H_4OEt = 138.2. Ethylhydrochinone, *p*-ethoxyphenol*. Colorless leaflets, m.66, soluble in water; a reducing agent.

hydroscopic Hygroscopic.

hydroseleno-* Prefix indicating the −SeH group.

hydrosilicofluoric acid Hexafluorosilicic acid*.

hydrosilicon See *silanes*.

hydrosol A colloidal suspension in water.

hydrosorbic acid Hexenoic acid*.

hydrosphere The liquid portion of the earth's surface, as the oceans, lakes, rivers, etc. Cf. *lithosphere, atmosphere*. Principal constituents: oxygen 85.8, hydrogen 10.7, chlorine 2.1, sodium 1.1%. Distribution, in Mkm^3: oceans 1,330, lakes 0.25, rivers 0.02, ice 4.0, groundwater 0.25.

hydrostatics The study of liquids in equilibrium.

hydrosulfate An addition combination of an organic base, usually an alkaloid, with sulfuric acid, without replacement of the hydrogen of the acid.

hydrosulfide (1) Thiol*, in organic compounds. (2) Hydrogensulfide*, in inorganic compounds.

hydrosulfite Dithionite*.

hydrosulfuric acid (1) Hydrogen sulfide*. (2) Dithionic acid*.

hydrosulfurous acid Dithionous acid*.

hydrotaxis The motion of organisms or cells toward water.

hydrotetrazone An aromatic compound containing 4 consecutive N atoms in the molecule; e.g., dibenzylidenediphenyldihydrotetrazone, PhCH:N·NPh·NPh·N:CHPh. Cf. *tetrazone*.

hydrotherapy The treatment of disease by water; particularly, the exercising of arthritic joints and paralyzed limbs in warm water.

hydroumbellic acid $C_9H_{10}O_4$ = 182.2. 3-(2,4-Dihydroxyphenyl)propanoic acid*. m.165.

hydrous Containing water. Cf. *anhydrous*. **h. salt** A salt containing water of crystallization.

hydroxamic acid* An organic compound containing the radical −C(:O)·NH·OH. **iso ~** Hydroximic acid*.

hydroxamino The hydroxyamino* radical.

hydroxamphetamine hydrobromide $C_9H_{13}ON·HBr$ = 232.2. White crystals, m.191, soluble in water; an adrenergic used for vasoconstrictor effect (USP).

hydroxides* Compounds containing the OH^- ion. In general, the h. of metals (M) are bases; those of nonmetals (N) are acids.

MOH	Bases
NOH	Acids
ROH	Alcohols, phenols
RCO·OH	Organic acids

alkyl ~ Alcohols*. **aryl ~** Phenols*. **Inorganic ~** Bases.

hydroxidion Hydroxyl ion*.

hydroximic acid* An organic compound of the type R·C(:NOH)·OH, isomeric with hydroxamic acids. **acet ~** $CH_3C(OH):NOH$. Colorless crystals, m.59. **di ~** HON:C(OH)−C(OH):NOH. **sulfino ~*** Suffix indicating the modified sulfinic acid group, −S(:NOH)OH. **sulfono ~*** Suffix indicating the modified sulfonic acid group, −S(:NOH)(O)(OH).

hydroximino† Oxime*.

hydroxo-* Indicating the anionic ligand group OH^-.

hydroxocobalamin $C_{62}H_{89}O_{15}N_{13}CoP$ = 1,346. The −CN in vitamin B_{12} is replaced by −OH. Red crystals, soluble in water. Produced from *Streptomyces grisens* during production of streptomycin. Used to treat pernicious anemia (USP, BP). See *cyanocobalamin, vitamin*, Table 101.

hydroxonium Hydronium.

hydroxy-* Oxy-. Prefix indicating the −OH group in an organic compound. Cf. *hydroxyl, hydroxides, hydroxo*. **h.acetic acid** Glycolic acid*. **h.acetophenone** $C_6H_4(OH)COMe$ = 136.2. ***ortho-*** b_{10mm} 97. ***meta-*** m.95. ***para-*** m.110. **h.acetyl†** See *glycoloyl*. **h. acid*** An organic compound containing both the h. and carboxyl radicals: HO·R·COOH. See *lactic acid series*. **h.amides** Oxyamides. Compounds containing the radicals $-CONH_2$ and −OH; as, $CHOH·CONH_2$, glycol amide. **h.amino*** The radical −NH·OH, from hydroxylamine. **h.anthracene** Anthrol*. **h.anthraquinone** $C_{14}H_8O_3$ = 224.2. **1- ~** m.190. **2- ~** Yellow leaflets, m.302, slightly soluble in water. **h.apatite** Compounds of the type $M_{10}(PO_4)_6(OH)_2$, where M is Ba, Sr, or Ca. The principal mineral in phosphorite deposits, biological tissue, human bones and teeth. An anticaking agent and polymer catalyst. **h.azobenzene** $C_{12}H_{10}ON_2$ = 198.2. ***ortho-*** Colorless needles, m.83, slightly soluble in water. ***para-*** Colorless prisms, m.152, slightly soluble in water. **h.azobenzene compounds** R·N:N·C_6H_4OH. Obtained by the action of diazo compounds on phenols in alkaline solution. They form dyes. **h.benzaldehyde** $C_7H_6O_2$ = 122.1. ***ortho-*** Colorless liquid, d.1.159, b.197, slightly soluble in water. ***meta-*** Colorless needles, m.104, soluble in water. ***para-*** Colorless needles, m.116, soluble in water. **h.benzamide** $C_7H_7O_2N$ = 137.1. ***ortho-*** Yellow leaflets, m.140, soluble in water. ***meta-*** Colorless leaflets, m.167, soluble in water. ***para-*** Colorless needles, m.162, soluble in water. **h.benzene** Phenol*. **h.benzoic acid** $C_7H_6O_3$ = 138.1. ***ortho-*** Colorless needles, m.158, slightly soluble in water. ***meta-*** Rhombic crystals, m.200, slightly soluble in water. ***para-*** Colorless, monoclinic crystals, m.201, slightly soluble in water. **h.benzyl alcohol** $C_7H_8O_2$ = 124.1. ***ortho-*** Salicyl alcohol*. ***meta-*** Colorless needles, m.67, slightly soluble in water. ***para-*** Colorless needles, m.120, soluble in water. **h.butanoic acid** $C_4H_8O_3$ = 104.1. **2- ~** Colorless crystals, m.43, soluble in water. **3- ~** $CH_3CHOHCH_2COOH$. **4- ~** $CH_2OH(CH_2)_2COOH$. **h.caffeine** See *hydroxycaffeine* under *caffeine*. **h.chloroquinone sulfate** $C_{18}H_{26}ON_3Cl·H_2SO_4$ = 433.9. White, bitter crystals, m.198 or 240, soluble in water; an antimalarial and antiarthritic (USP, BP). **h.choline** Muscarine. **h.cinnamic acid** Coumaric acid. **h.citric acid** $C_6H_8O_8$ = 208.1. Colorless liquid, soluble in water; found in sugar beets. **h.coniine** Conhydrine. **10-h.-2-decenoic acid*** $C_{11}H_{20}O_3$ = 200.3. An optically inactive acid constituting the major portion of the ether-soluble fraction of royal *jelly*, q.v. **h.ethylamine** $NH_2(CH_2)_2OH$ = 61.1. Colorless liquid, d.1.022, b.171, produced by the putrefaction of kephalin and serine. **h.formic acid** Carbonic acid. **h.glutamic acid** $NH_2(OH)C_3H_4(COOH)_2$ = 163.1. **3- ~** Obtained by extraction of protein hydrolysate in butane. **h.hexanoic acid** $C_6H_{12}O_3$ = 132.2. 2-Hydroxycaproic acid. Colorless crystals, m.60, slightly soluble in water. **h.hydrazides*** Oxyhydrazides. Compounds containing the OH and hydrazide groups; as, $HOCH_2CONHNH_2$, glycolhydrazide. **h.imino** The oxime* radical. **h.isobutyric acid** Acetonic acid. **h.isophthalic acid** $HO·C_6H_3(COOH)_2$ = 182.1. Hydroxy-1,3-benzenedicarboxylic acid*. Colorless needles, slightly soluble in water. **2- ~** m.234. **4- ~** m.305. **5- ~**

c.diiminot See *ureylene*. **c.dioxy*** The radical $-O\cdot CO\cdot O-$. **c.diurea** Triuret*. **c.pyrrole** $CO(C_4H_4N)_2$ = 160.2. Colorless crystals, m.63. **c. sulfide*** COS = 60.0. Carbon oxysulfide. Colorless gas, b.−50, slightly soluble in water, explosive in air. **c. thiocarbonanilide** $C_2ON_2SPh_2$ = 254.3. Colorless crystals, m.87. **thiocarbonyl thiocarboanilide** $C_2N_2S_2PH_2$ = 270.4. Colorless crystals, m.79.

carbonyls* Carboxides. Compounds of carbon monoxide and metals, some volatile; as, nickel carbonyl.

carbophenothion* See *insecticides*, Table 45 on p. 305.

carboraffin An activated charcoal, used chiefly for decolorizing sugar solutions.

Carborundum Trademark for certain silicon carbide and other abrasives.

carbosant $(C_{15}H_{23})\cdot O\cdot COO(C_{15}H_{22})$ = 466.7. Santalyl carbonate. Carbonic acid ester of sandalwood oil. Yellow oil, insoluble in water.

carbostyril* C_9H_7ON = 145.2. 2(1*H*)-Quinolinone. Colorless prisms, m.199, slightly solube in water. **ethyl ~** See *ethylcarbostyril*. **hydro ~** C_9H_9ON = 147.2. Colorless crystals, m.163. **hydroiso ~** C_9H_9ON = 147.2. Crystals, m.71 **iso ~** C_9H_7ON = 145.2. 1(2*H*)-Isoquinolinone. Crystals, m.208. **methyl ~** Lepidone. **nitro ~** $C_9H_6O_3N_2$ = 190.2. Colorless crystals, m.168. **octahydro ~** $C_9H_{15}ON$ = 153.2. Crystals, m.151. **oxy ~** $C_9H_7O_2N$ = 161.2. Colorless crystals, m.300.

carbostyrilic acid Kynuric acid.

carboxamide* The group $-C(:O)NH_2$.

carboxamides* Amides derived from carbon acids. Cf. *sulfonamides*.

carboxamidine(s)* Amidine, q.v. *(amidines)*, whose name is derived from that of a carboxylic acid.

carboxin* See *fungicides*, Table 37.

carbox metal The alloy Pb 84, Sb 14, Fe 1, Zn 1%.

carboxy* Prefix indicating the acidic carboxyl* group, −COOH.

carboxyhemoglobin A compound of carbon monoxide and hemoglobin formed in the blood by carbon monoxide poisoning.

carboxyl* Oxatyl. See *carboxy*.

carboxylase* See *enzymes*, Table 30. **co ~** Thiamine pyrophosphate.

carboxylic acid* A compound of the class R·COOH. Used both as a class name and a suffix. See *acid, -oic acid*. Cf. *carbylic acid*.

carboxylyase* An enzyme which splits the carboxyl group into carbon dioxide.

carboxymethylcellulose See *cellulose*.

carboy Demijohn. A 10- to 13-gal glass flask protected by wickerwork; formerly used for acids, etc. **c. inclinator** A support to enable a c. to be inclined and emptied easily.

carbro process A method of making color prints from color photographs.

Carbrosolide Trademark for silicon carbide.

carburation (1) Carbonization as applied to internal combustion engines. (2) Carburization.

carburet Carbide.

carburetor, carburettor The part of the internal combustion engine where full vaporization occurs.

carburite A mixture of equal parts carbon and iron, for recarburizing steel in the electric furnace.

carburization The dissolution of carbon in molten metals; as, steel produced by heating in a stream of carbon monoxide. **case ~** Carburization on the surface. **c. gas** The production of a toughened surface layer of high-carbon steel by heating steel components in a carbon-rich gas.

carburizing Carburization.

carburolith A solid safety fuel which exudes flammable vapor under pressure. It consists of petroleum with 3% of a stabilizer (sodium silicate mixed with copper alginate and an excess of ammonia).

carbylamine (1) Isocyanide*. (2) Ethylisocyanide*.

carbylic acid An organic acid which has carbon in its acid radical; as: **ammonia ~** $R\cdot CNH\cdot NH_2$, carbazylic acid. **aquo ~** R·COOH, carboxylic acid. **thio ~** R·CSSH, dithionic acid. Cf. *siliconic acid, stannonic acids*.

carbynes (1) Organic compounds of doubtful existence, containing chains with −C:C− bonds. Chaoite is said to be a naturally occurring c. (2) (sing.) The methylidyne* radical.

carcel unit The brightness of the carcel lamp, burning 42 g of colza oil per hour. 1 carcel unit = 9.6 candles = 7.5 German standard *candle*, q.v.

carcinogen A substance which produces a carcinoma in living tissues; as, benzopyrene. Cf. *neoplastigen*. **co ~** An agent that increases the effect of a c. when administered with it.

carcinoma A tumor originating from malignant epithelial cells; e.g., skin cancer (epithelioma).

carcinomic acid An unsaturated fatty acid in cancerous serum and tissue.

cardamom The seeds of *Elettaria cardamomum* (Zingiberaceae), tropical Asia; an aromatic and a spice (NF, BP). **Malabar ~** d.0.933–0.943; contains eucalyptol. **Siam ~** d.0.905; contains borneol. **c. oil** The essential oil of c., d.0.895–0.905; it contains terpinene, dipentene, and citrene (NF, BP).

Cardanol $C_{15}H_{29}\cdot C_6H_4\cdot OH$ = 302.5. 3-(8-Pentadecenyl)phenol. Trademark for a liquid obtained by the distillation of cashew nut juice, b_{10mm}225. Its esters are plasticizers.

cardenolide Cardogenan. Describing the fully saturated system of digitaloid lactones; the configuration at the 20 position is the same as in cholesterol. Cf. *steroid*.

cardiac Pertaining to the heart (καρδια = heart). **c. glycosides** A group of glycosides, of similar chemical structure (see *digoxin*), from various plants, mainly digitalis (foxglove). Widely used since 18th century for effect on the heart, particularly the increase in force of contraction and decrease in heart rate. Used in heart failure and to control rapid heart rate. C. g. are bound to plasma proteins. See *digitalis, oubain, strophanthus*.

carding An operation in the manufacture of woolen felts which opens up the material, mixes the fibers, and removes foreign matter, by the action of wire brushes.

cardiogram, cardiograph See *electrocardiogram*.

cardioid Heart-shaped. **c. condenser** A device to concentrate light in the ultramicroscope.

cardogenan Cardenolide.

Cardol $C_{21}H_{32}O_2$ = 316.5. Trademark for an irritant phenolic oil liquid from the shell of *Anacardium occidentale*, cashew nuts.

carene* $C_{10}H_{16}$ = 136.2. **3- ~** (1*R*,6*S*)-3,7,7-Trimethylbicyclo[4.1.0]hept-2-ene. Colorless, sweet-smelling oil, d.0.8586, b.170. A terpene in essential oils and some turpentines q.v.

Carex Red couch grass. A perennial, grasslike herb (Cyperaceae).

Cargau Trademark for a protein synthetic fiber.

Carica The papaw or melon tree. *Carica papaya* (Caricaceae), S. America. Cf. *papaya*. **c. xanthin** Cryptoxanthin.

caricin (1) A glucoside from the seeds of carica. Cf. *papain*. (2) A protease, papain.